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ABSTRACT

An overview of the development of education in Canada since the early 1960s is presented. The influence of demographic patterns on enrollment at all levels of education is investigated. Enrollment patterns from the elementary through the doctoral level are discussed, and the university participation rate trends are examined. The growth in postsecondary enrollment has been reflected in the increase in the number of degrees, diplomas, and certificates granted for full-time and part-time study. Almost 25 percent of the labor force now has at least some postsecondary education. The mobility pattern of university students is described and trends in teacher supply and demand at all levels of the educational system are discussed. The financing of education in Canada, including student assistance, sources of funds, government expenditures, and expenditures on various types of education, is examined. Canadian research and development funding is also described. Over 40 tables present data on all aspects of educational trends and financial aspects of education in Canada for the period 1960 through 1977. (SC)

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THE DEVELOPMENT OF CANADIAN EDUCATION IN THE SIXTIES AND SEVENTIES

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December 1975

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INTRODUCTION

The purpose of this document is to provide an overview of the development of education and university research since the early 1960s, as well as anticipate future directions.

The information has been grouped under ten headings:

(a) demographic trends;

(b) enrolment patterns;

(c) participation rates;

(d) degrees, diplomas and certificates awarded;

(e) mobility pattern;

(f) student assistance;

(g) teachers;

(h) educational attainment;

(i) financing of education;

(j) research and development (R&D).

The focus is on national data with occasional provincial breakdowns. Most of the information, if not otherwise indicated in the tables, has been derived from either published or unpublished Statistics Canada sources.1/

The text highlights only the most significant aspects in the development of education, since the primary purpose is to provide consistent statistical series.

DEMOGRAPHIC TRENDS

Demographic trends determine enrolment in elementary and secondary education and influence (to a great extent) enrolment in post-secondary education.

Chart 1 shows the actual and projected population trends for selected age groups between 1961 and 2001. It is anticipated that the Canadian population will increase from less than 23 million in 1975 to over 30 million by 2001. The key assumptions in these projections are that the annual fertility rate will be 2.20 and the net positive migration, 60,000 annually.

1/Especially from "Education in Canada 1973", and the "1974 Supplement" and "Advance Statistics of Education of 1975-76".

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Based on these premises, the 5 to 13 year age group (which includes most of those in kindergarten and grades 1 to 8) will continue to decline until 1980, and then increase again until the mid-1990s. The 14 to 17 age group (grades 9 to 13) is levelling off and will shortly decline, but will increase again in the late 1980s. The 18 to 24 age group will continue to expand until the early 80s, but will then decline substantially for the next 10 years. The decline for the 18 to 21 age group will occur during the late 70s.

These demographic patterns are the basis for enrolment projections by level of study, and are particularly critical for post-secondary enrolment in the 1980s.

ENROLMENT PATTERNS

During most of the 1960s, elementary enrolment (grades 1 to 8) increased by 2% annually, but since 1969-70, it has declined and will continue to decline until 1980, mainly due to the reduction in the fertility rate. (Table 1) In the 1980s, when the women born after the war will have entered child-bearing age, the number of elementary students will grow again.

Secondary enrolment increased during the 60s, influenced by two factors. The 14 to 17 age group expanded rapidly, and more important, the participation rate in secondary education rose to over 90 percent. Thus, it is expected that future secondary enrolment will be determined primarily by the 14 to 17 age group population which will continue to expand in this decade, but will then decline. In 1975-76, there are about 1.8 million secondary students, twice the number of 1960-61.

Post-secondary full-time enrolment increased almost three-fold from 163 thousand in 1960-61 to 447 thousand in 1969-70. Although university enrolment levelled off in the early 70s, the growth rate between 1973-74 and 1974-75 was still 5.6%; and it is anticipated that university enrolment will grow for the next few years by at least 3% annually.

Post-secondary non-university enrolment has expanded spectacularly since the mid-1960s through creation of Ontario Colleges of Applied Arts and Technology, CEGEPs in Quebec, and community college systems in other provinces. It is anticipated that enrolment in these community colleges will grow by over 4% annually in the late 1970s.

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Post-secondary enrolment growth stemmed from two main factors. The source population, the 18 to 24 age group, increased substantially due to the post-war "baby-boom"; and equally important, the participation rate for this age group almost doubled, rising from 9.7% in 1960-61 to 18.5% in 1971-72. (Table 2)

Expansion of part-time post-secondary enrolment has corresponded to the increase in full-time enrolment.2/ At present, part-time enrolment is increasing more rapidly than full-time, and a similar trend is expected for the future. Part-time university enrolment in credit courses rose from 44 thousand in 1962-63 (the first time these data were collected) to 162 thousand in 1973-74. (Table 3)

A recently developed Statistics Canada enrolment series for continuing education shows that in 1971-72, 1.2 million students took credit and non-credit courses, on a part-time basis. (Table 4) In 1973-74, 1.3 million students enrolled in continuing education in various educational institutions, 53.6% of them in non-credit programs. Enrolment in school board and Department of Education courses was 561 thousand, 285 thousand in post-secondary non-university institutions, and 487 thousand in universities. Considering that the 1971 out-of-school population of Canada 15 years and over was 13.2 million, the part-time enrolment figure is astounding. It means that almost 10% of Canada's population took advantage of the existing opportunities in the education systems. In addition, there were educational programs provided by professional associations, trade unions, church groups, and voluntary organizations. It appears that enrolment in non-credit continuing education courses is now expanding more rapidly than enrolment in credit programs.

One of the most remarkable features of the expansion of Canadian universities since 1960 has been the growth of full and part-time graduate enrolment. Full-time graduate enrolment increased almost six fold during that decade, but this trend levelled off by 1973-74. (Table 5) The average annual growth rate from 1960-61 to 1973-74 was 14.5%, although rates in some years were often much higher. Part-time graduate enrolment increased from an estimated 3,800 in 1960-61 to 22,278 in 1973-74, and has continued to grow in recent years.3/

2/Enrolment data available for part-time study is rather incomplete. For example, there is no statistical information on part-time students in the post-secondary non-university sector.

3/Two separate documents have been prepared on graduate enrolment patterns and socio-economic characteristics of graduate students and are available on request.

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For the next few years, both full-time and part-time graduate enrolment is likely to expand, particularly in the social sciences and humanities. By 1977-78, there may be almost 70,000 graduate students at Canadian universities.

According to the Department of Manpower and Immigration, 41,012 foreign students were admitted to Canada to study during the calendar year 1974. (Table 6) This represents an increase of 35.2% over the previous year. There are indications that the number of foreign students will be substantially higher in 1975 than in 1974.4/

Foreign students in Canada are classified into five categories by the Department of Manpower and Immigration: primary, secondary, university, trade and technical, and other. In 1974, there were 18,035 university students, an increase of 3,085 over the previous year. Secondary school student also increased from 5,463 to 7,490, which represents a percentage increase of 37.1%. The technical or trade category (including others) grew from 9,347 to 14,688.

The 9,972 U.S. students accounted for 24.3% of all foreign students, about 60% of them at the university level. It should be remembered that approximately 10,000 Canadians were studying in the United States during the same period, with a heavy emphasis on graduate and professional education.

In contrast to the limited growth of the number of U.S. students in Canada, the number of students from some other countries underwent a spectacular increase between 1973 and 1974. This growth was not only at the university level but also at the secondary and post-secondary non-university levels. As illustrations, secondary students from Hong Kong increased from 2,763 in 1973 to 4,199 in 1974, and post-secondary non-university students (including others) from Guyana more than doubled from 1,108 to 2,512. Similarly, for all five categories, the number of students from Nigeria, Haiti, Pakistan, Iran, Jamaica and Malaysia almost doubled.

In the university sector, the proportion of foreign students is particularly high at the graduate level and at the undergraduate level; in certain faculties such as engineering. In 1973-74, it has been estimated that 12.9% of the full-time masters students and 15.3% of the doctoral students were foreign. (Table 7)

Citizenship and legal residence status of full-time university students by all levels in 1973-74 showed that 87.9% were Canadian citizens, 6.5% landed immigrants and 5.6% foreign students.

4/A comprehensive 150 page publication, "Canadian Students Abroad and Foreign Students in Canada", is available on request.

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Citizenship status varied considerably by graduate level and field of study in 1972-73. For example, 53% at the Ph.Ds level were Canadian citizens, with a high of 75.9% in Fine Arts, and a low of 33.8% in Engineering. (Table 8)

The geographic origin of full-time doctoral students indicates that 12.6% had come from the United States and 6.9% from the United Kingdom. The pattern by field of study shows that 22.7% in the Humanities were from the United States, and 32.5% in Engineering were from Asia. (Table 9)

PARTICIPATION RATE

The university participation rate for the 18 to 24 age group levelled off during the early 70s and then gradually declined. For the next few years, the participation rate is likely to remain rather constant for universities, but will continue to expand in the post-secondary non-university sector.

The participation rate varies by sex. Although the female rate may grow somewhat more rapidly than the male rate, a substantial difference between the sexes remains. Whereas the male participation rate for all post-secondary education in 1973-74 was 21.4%, the female rate was only 14.5%. (Table 2)

The 18 to 24 age group is becoming inadequate as a base for measuring participation in post-secondary education, since it represents only 80% of post-secondary students. In the future, a sizeable number of post-secondary students will be older than 24. This applies particularly to part-time and graduate students.

There were also considerable provincial variations in the participation rate for the 18 to 24 age group. (Table 10) Newfoundland had a rate of 3.9% in 1960-61, and although it had increased more than threefold by 1972-73, it is still the lowest of the ten provinces. In the other provinces, the participation rate almost doubled, with the exception of British Columbia where the increase was more moderate: from 10.8% in 1960-61 to 14.6% in 1972-73.

DEGREES, DIPLOMAS AND CERTIFICATES AWARDED

The growth in post-secondary enrolment during the 60s has been reflected in the number of degrees, diplomas and certificates granted for both full-time and part-time study.

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The number of bachelor's degrees awarded increased four times, from 19.7 thousand in 1960-61 to an estimated 78.6 thousand in 1974-75. (Table 11) The number of masters degrees increased almost five times since 1960-61, from 2,200 to 10,500 in 1974-75. The number of doctoral degrees granted has increased about six fold from 300 to 2,000 during the same period.

Because most community colleges were established in the late 60s, indications of the growing number of diplomas and certificates granted are available only since 1966-67: from 25,000 in that year to 60,000 in 1974-75. (Table 12)

Canadian post-secondary institutions now award over 150,000 degrees, diplomas and certificates annually. One question which arises is: Can this number of graduates be satisfactorily absorbed into the labor market? This situation is particularly difficult because the age structure of Highly Qualified Manpower in Canada is rather young. Consequently, relatively few replacement positions are available annually. Employment opportunities for only one-quarter to one-third of the 150,000 graduates of post-secondary institutions can be provided. The balance must find employment in an expanding economy, or fill positions which formerly required less qualified persons. It appears that the labor market for the foreseeable future will have difficulties integrating so many graduates.

MOBILITY PATTERN OF UNIVERSITY STUDENTS

Tables 14 and 15 provide information on the geographic mobility of undergraduate and graduate students at Canadian universities by province for 1971-72. At the undergraduate level, for the large majority of students, permanent residence was identical to the place of study, although variation by province is of interest. In Newfoundland, only 1.9% of the undergraduates were residents of the other provinces. For the other Atlantic provinces, this percentage was higher (about 20%). By contrast, in Quebec, 97.0% were residents of that province. For the Western Provinces, well over 90% were residents of their particular province.

At the graduate level, there was much greater inter-provincial mobility than at the undergraduate level. For example, 42.4% of the graduate students in New Brunswick were out-of-province, compared with only 4.9% in Quebec and 22.7% in Ontario. In the Western Provinces, on the average, 20% were not permanent residents of the province where they were studying.

It is of interest to compute the net flow of both undergraduate and graduate students among the provinces. As of 1971-72, more undergraduate students left Newfoundland and Prince Edward Island than went there to study. (Table 16) In the case of Nova Scotia, three times as many undergraduates came than residents who left. In contrast, the proportion of Quebec residents studying in other provinces was much higher than that of students from outside the province studying in Quebec. The opposite was true for Ontario. Overall, at the undergraduate level, the net flow was surprisingly small for all provinces when related to total undergraduate enrolment in each one. The same pattern applies at the graduate level. (Table 17) Quebec had a substantial "net" number of graduate students who went to the other provinces, in contrast to Ontario where the net flow was positive. More than 1,000 graduate students came to study in Ontario than the number of residents who went outside the province to pursue graduate studies. More than 1,000 graduate students came to Ontario to study than the number of residents who went outside the province to pursue graduate studies.

The net flow for most provinces indicates that the in-flow and out-flow of students at both the undergraduate and graduate levels are reasonably in balance, and there exists with one or two exceptions, no case in which substantial compensatory payments will have to be made on a multilateral basis.

STUDENT ASSISTANCE

With the rapidly increasing post-secondary enrolment of the early 1960s, it became apparent that existing sources of financial assistance for post-secondary studies were insufficient to meet the demands placed upon them. There was also a growing feeling that a large number of talented young people were unable to attend post-secondary institutions because of inadequate financial resources, particularly those whose parents' income and social status could be regarded as disadvantaged. Therefore, in 1964, the federal government instituted THE CANADA STUDENT LOANS PLAN. It guarantees loans for students attending post-secondary institutions on a full-time basis. The actual loans are advanced by chartered banks and other designated lenders on the basis of certificates of eligibility issued by the nine provinces participating in the plan. The federal government carries the costs of interest payments on these loans while the students continue full-time studies, and for six months thereafter. In addition, the federal government is responsible for loss and death claims and collection fees.

Nine provinces have also developed various complementary student aid schemes, and Quebec, which operates its own loan and bursary scheme, receives alternative payments from the federal government.

The Canada Student Loans Plan now offers loans of up to $1,400 per student each year with a maximum total of $9,800.

Since the inception of the Canada Student Loans Plan in 1964, the federal government authorized loans of $671.8 million until 1973-74. (Table 13) The average loan per student increased from $650 to $919 during the same period. The percentage of students participating in the Canada Student Loans Plan rose from 27% in 1964-65 to 39% in 1970-71 but declined to 35% in 1973-74.

Total net cost for the federal government, including alternative payments to Quebec, increased from $1.7 million in 1965-66 to $27.1 million in 1970-71 and to an anticipated $40.1 million in 1973-74.

The federal government has also directly supported students, mostly at the graduate level, through scholarship and fellowship schemes. In 1972-73, 5,546 students benefitted from these programs. (Table 41) The large majority received awards from the Canada Council and the National Research Council for doctoral studies, but other departments or agencies such as Agriculture and Central Mortgage & Housing provided their own student support programs. The total cost of direct federal support to these students was $21.2 million in 1972-73, and the average grant was $3,817.

TEACHERS

In conjunction with the rapidly expanding enrolment during the 60s at the elementary, secondary and tertiary level, the number of teachers increased at an even faster rate.

In elementary and secondary education, the number of teachers grew from 164,000 in 1960-61 to 276,000 ten years later. (Table 18) Since the early 70s, the total number of teachers has declined slightly reflecting the elementary enrolment decrease. But because secondary enrolment is still expanding, the substantial decline in demand for elementary school teachers has been offset to some extent.5/

The growth in the elementary and secondary school teaching force was caused by two main factors: the increase of the number of students and, at the same time, the decline of the student-teacher ratio. There was a particular increase in secondary school teachers, due not only to more secondary school students, but also to broadening the program of study.

5/Statistics Canada does not provide a breakdown between elementary and secondary school teachers in "Advance Statistics of Education".

It has been estimated that the student-teacher ratio declined from 25.6: 1 in 1960-61 to 21.3: 1 in 1970-71, and since then has levelled off. No substantial changes in the ratio are envisaged for the future on account of budgetary restrictions recently placed on expansion of educational expenditures by most provinces. Therefore, the demand for new teachers will be limited although there is a substantial turnover, particularly of female teachers, who withdraw temporarily or permanently for family formation.

The increase in the number of post-secondary teachers was even more impressive. In 1960-61, there were less than 8,000 full-time university teachers; 15 years later there were over 30,000 university faculty. At the same time, the number of post-secondary non-university teachers increased from 4,000 in 1960-61 to almost 17,000 in 1974-75. This growth of teaching staff in universities occurred through the creation of new universities and the expansion and restructuring of those already in existence. At the post-secondary non-university level, by the mid-sixties, most provinces had created community college systems such as the Colleges of Applied Arts and Technology in Ontario, and CEGEPs in Quebec, which have become rather popular and appear to have made post-secondary education accessible to some of the underprivileged groups in our society.

Whereas the average annual growth rate in the number of post-secondary teachers was well over 10% during most of the sixties and into the early seventies, since then it has levelled off. At present, it appears that the number of full-time post-secondary teachers will grow gradually for the next years, in the neighbourhood of 3% annually. This situation has serious consequences for graduate students who planned post-secondary teaching as a career. Since the majority of the university faculty is in the mid-thirties, the potential replacement rate is about one percent annually: approximately 400 university positions due to retirement, death and ill health.[6/] On the supply side, Canada produces over 2,000 Ph.Ds a year, including Canadians with doctorates from abroad. Historically, 50% to 75% of Ph.D. recipients have entered university teaching as a career.

Consequently, there is a potential imbalance: a growing supply and a decreasing demand, particularly if university enrolment does not expand. In the past, growth in university faculty was due not only to expansion in enrolment, but just as importantly, to changes in the student-staff ratio. About 10,000 university positions were created through the shift in the ratio, which declined substantially from 20: 1 during the early 60s, to less than 14: 1. (Table 19) Since, for budgetary and other reasons, a reduction in

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6/A detailed study on the growth pattern and socio-economic characteristics of university teachers (1956-57 to 1974-75) is in preparation, and will be available on request by December 1975.

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the student-teacher ratio is unlikely, the demand for Ph.Ds in universities is limited. At the same time, alternative employment opportunities in other sectors such as industry and government are unfavorable, creating an unhappy social and economic environment for this well-trained group.

Another issue which will become critical during the 80s, is the substantial decline of the 18 to 24 age group from 3.3 million to 2.7 million. Provided that the participation rate does not increase drastically and the student staff ratio is reduced, there will be a potential surplus of university teachers. It seems unlikely, on account of the age structure alone, that the reduction in teaching positions could be resolved by not filling replacement positions. These issues require more thoughtful attention and analysis than they have received so far.

EDUCATIONAL ATTAINMENT

As a consequence of the rapid expansion in secondary and post-secondary education, the educational attainment of the Canadian labour force has changed spectacularly. Whereas in 1960, 45.3% of the labour force had only elementary education, the comparable figure for 1974 was 21.6%. (Table 20) At the same time, the percentage of the labour force with at least some post-secondary education has increased from 8.5% to 24%. If these trends continue, almost one-third of the Canadian population would have post-secondary education by 1985. (Table 21)

A comparison of the 1961 Census with the 1971 Census shows a similar pattern. (Table 22) In 1961, 22% of the population had less than grade 5 education, it declined in 1971 to 10%. The proportion with post-secondary education increased from 4.9% in 1961 to 16.9% in 1971.

These changes in the educational attainment of the Canadian population, and in particular of the labour force, have not only labor market consequences, but also social and cultural implications for the future.

FINANCING OF EDUCATION

Expansion in enrolment is reflected in the growth of educational expenditures in current dollars.

Education expenditures related to GNP were 4.4% in 1960, and double that in 1970. Since then, this proportion has declined. (Table 23) For each Canadian, $95 was spent on education in 1960 whereas by 1972, the figure was $403. Similarly, for each

full-time student at the three levels of education, $391 was allocated in 1961 and $1,388 in 1972. As well as the inflation factor, these relationships reflect not only the increase in the number of students, but also changes in the educational mix.

Government expenditures (including federal, provincial and municipal) on education at all levels increased from 14% in 1960 to 22% in 1968, and since then have declined slightly. (Table 24) To place these figures in perspective, only health expenditures increased more rapidly during the last twelve years, while defense declined from 17% to 6.3%.

During the period 1960 to 1975 per student operating expenditures for full-time elementary-secondary students increased from $305 to $1,379, post-secondary non-university from $915 to $3,233, and university from $1,603 to $5,786. (Table 25) This growth in educational expenditures, in current dollars, does not indicate what proportion of the increase is attributable to inflation, and what percentage is accounted for by real growth in the educational costs for each student.

Educational expenditures since 1960-61, have risen from $1.7 billion in current dollars, to an estimated $12.2 billion in 1975-76: an over seven-fold increase. (Table 26) This growth pattern varied by level. Expenditures for elementary and secondary education increased from $1.3 to $7.8 billion, post-secondary non-university from $57.6 to $892.0 million, university from $273 million to $2.6 billion, and vocational and occupational from $47 to $810 million.

Expenditures on elementary-secondary education accounted for 77.9% of the total in 1960-61, but gradually declined to 64.5% in 1975-76, whereas the post-secondary share increased from 19.4% to 28.7%.

In 1960, 49.1% of expenditures on elementary-secondary education came from municipal governments. This proportion declined to 28.3% in 1975-76, while the provincial share increased from 40.8% to 63.8%. (Table 27) Federal government and fees are minor sources of funding for elementary-secondary education.

In contrast, federal financial involvement in post-secondary education and vocational and occupational training has been substantial, particularly since the Federal-Provincial Fiscal Arrangements Act of 1967 and the Adult Occupational Training Act of the same year.

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During the early 60s, federal contributions amounted to about 20% of expenditures for post-secondary education, but this increased to more than 50% in the early 70s. For example, for the fiscal year 1972-73, federal expenditures constituted 53.7%, compared with 27.2% from the provincial governments. Income from student fees has declined from about 15% to less than 10%, and the percentage from other sources, such as gifts and endowment income has also decreased substantially from a high of more than 20% in 1964 to about 5% by the mid-seventies.

Under the 1967 Federal-Provincial Fiscal Arrangements Act, and its 1972 and 1973 extensions, the federal government programs contributed $421.5 million for post-secondary education during the first year (fiscal 1967-68) and will likely pay $1.5 billion in 1975-76. (Table 29) Annual growth rates in the early part of this program exceeded 20%.

Per capita expenditures for post-secondary education increased from $21 in 1967-68 to $48 in 1973-74. Some provinces, particularly in the Atlantic region and in the West, have benefited less from this program on a per capita basis. (Table 30)

Expenditures on vocational and occupational training by source of funds show the prominence of federal participation since 1967, accounting for over 70% of these expenditures. (Table 31) The contribution of provincial governments has declined to about 20%.

The federal costs of manpower training programs increased from $208 million in 1967-68 to an estimated $486 million in 1975-76. (Table 32) The two major categories were payments to post-secondary institutions, mostly community colleges, and allowances to trainees.

Table 33 is an overview of federal support for education and university research. In 1972-73, the federal government paid $1.9 billion for these activities. The major share (73%) was paid to the provinces for post-secondary education, with additional financial resources made available for student assistance and research activities in universities.

RESEARCH AND DEVELOPMENT (R&D)

A measure frequently employed to make international comparisons of research funding is to relate government research and development expenditures to GNP. The Canadian government's research and development support increased from an estimated 0.4%

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in 1961 to 0.7% of the GNP in 1970. (Table 34) Most industrialized countries contributed a larger share. For example, in 1970, the United States' percentage was 1.6%, France's 1.2%, Great Britain's 1.1%, and Germany's 0.9%. Canada's government funded research and development, as percentage of government expenditures, is well below that of other industrialized countries, and it has been declining since 1968.

In 1961, Canada's proportion was 3.4%, in 1968 4.0%; and in 1971, it fell back to the 1961 level. (Table 35) The comparable percentages in the United States, United Kingdom and France were respectively 7.5%, 7.1% and 9.1%, but these countries also experienced a decline from earlier years.

In dollar terms, total research and development expenditures by source of funds increased almost threefold from $449 million in 1963 to $1,228 million in 1972. (Table 36) The share of governmental expenditures declined from 54.6% to 50.8% during that period, while industry's proportion fell from 32.7% to 27.4%, with some variations over the years. In contrast, the contribution from the university sector increased from 8.9% to 17.3%.

It is of interest to compare expenditures on research and development by source of funds with sector of performance over time. Although the government provides more than 50% of the R&D funding, it has performed a declining percentage of R&D activities: 42.1% in 1963; 32.9% in 1972. (Table 37) Similarly, industry's activity also decreased from 40.3% to 35.0%, whereas the university and private non-profit sector rose rather substantially from 17.6% to 32.0%. Consequently, at present, the three sectors, government, industry and university, each perform one-third of the research and development work in Canada. The proportion of university R&D expenditures related to total university expenditures has declined from 26.3% in 1966 to 20.9% in 1972. (Table 38)

Most federal government research support for universities is channelled through the Canada Council, the National Research Council, and the Medical Research Council.

In the natural sciences, the National Research Council's support for university research increased from $18.1 million in 1965-66 to $55.5 million in 1970-71, and has since levelled off at $60.0 million in 1974-75. (Table 39) The Medical Research Council has also tripled its expenditures to universities, including research support to hospitals. In dollar terms, this amounted to grants of $11.5 million in 1965-66 and $26.8 million in 1974-75.

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In 1965-66, other government departments and agencies contributed $11.8 million for university research and development, and $38.8 million in 1974-75.

Government support for research was in the human sciences (e.g., humanities and social sciences) $31.9 million in 1973, and $44.7 million in 1975.

Research expenditures by the three Councils show that grants, mostly to university teachers, were the major item in their budgets. Out of total budget of $66.4 million in 1974-75, the National Research Council spent $58.5 million on R&D grants. (Table 40) The scholarship program amounted to $6.8 million that year compared with $7.9 million in 1968-69. For the Medical Research Council's budget in 1972-73, $35.0 million of which was R&D grants out of a total $38.2. The Canada Council's research support budget of $19.5 million was more evenly divided into four major categories: research grants, research fellowships, scientific information, and education support.

CONCLUDING OBSERVATIONS

In the light of some of the data in this report, a number of observations are pertinent.

Demographic trends of the Canadian population will reduce post-secondary enrolment in a few years. The source population, the 18 to 24 age group, will decline from 3.3 to 2.7 million; and if the participation rate does not change substantially during the 80s, there may be an absolute decline in the number of full-time post-secondary students. As a consequence, the number of university teaching positions will decrease and there will be fewer openings for new faculty. This situation will be aggravated by the age structure of university teachers, which will remain rather young.

Although enrolment is still growing, as a precaution, against the potential decline, post-secondary institutions might avoid augmenting the number of post-secondary teachers. At the university level, this might be accomplished by temporarily increasing the student-teacher ratio, which fell during the 60s and early 70s from 20: 1 to less than 14: 1, or by greater utilization of part-time teachers. Budgetary considerations could necessitate also this action. (For post-secondary non-university institutions, this situation does not appear as critical).

The potential decline of university enrolment has unfortunate consequences for the supply of Ph.Ds on the labor market. For the next 5 to 7 years, more than 2,000 doctoral degrees will be awarded annually while fewer than 400 teaching position as replacements will become available each year.

This development may have a detrimental impact on the quality of higher education in Canada. Without an adequate infusion of newly trained, competitive, young research talent, there is a danger of intellectual stagnation in the universities.

In the past, the international mobility of highly qualified manpower, especially to the United States, was a safety mechanism, but it has almost disappeared. Therefore, employment opportunities appear bleak for those 15,000 Ph.D. and post-doctoral students who are studying at Canadian universities.

The question arises: how can the Canadian economy absorb almost 100,000 university graduates each year, particularly when the government and education sectors, which historically employed a large number of university graduates, are not expanding. Paradoxically full-time graduate enrolment increased more than 15% in 1975-76 over the previous year. A major factor in this development may be the lack of employment opportunities for holders of a bachelor's degree. Since the annual cost of graduate programs is between $5,000 and $10,000 for each student, it is an expensive measure to reduce unemployment or underemployment.

The educational attainment of the Canadian population has undergone remarkable changes since 1960: whereas fifteen years ago, less than 7% had at least some post-secondary education, the proportion today is three time as large, and there are indications that by the middle of the 1980s, almost every third Canadian will have some or a completed program of post-secondary training. This trend raises a number of social and economic questions, which are beyond the scope of this report.

A special feature of the expansion of educational opportunities has been the growth of part-time study. In 1973-74, an estimated 1.3 million part-time students participated in continuing education courses; this means that about 10% of the Canadian population, 15 years and over, were involved in continuing education programs, a development which requires much more attention than it has received.

Another issue requiring clarification is the increase of foreign students. In two years, the number of foreign students at all levels of education has risen from 30,000 in 1973 to an estimated 50,000 in 1975. (Hong Kong students increased from 6,000 to over 13,000 during that period). It appears that neither the educational institutions nor the federal and provincial governments have a policy concerning their numbers, country of origin and level of study.

The net interprovincial movement of undergraduate and graduate students was almost balanced for most provinces. There seems to be no need for substantial compensatory payments on account of student mobility.

For all levels of education, expenditures in current dollars have grown even more rapidly than the increase in enrolment.

As a percentage of GNP, educational expenditures almost doubled during the sixties, but declined to an estimated 7.5% of GNP in 1973 from a 1971 high of 8.9%. This development is probably welcomed by many who have become concerned about the burden placed on Canadian society of financing rapidly rising educational costs.

This decline is also reflected in the proportion of federal, provincial and municipal government spending on education in relation to other major functions. Health and social welfare expenditures have increased much more rapidly in recent years than education which has fallen to less than 20% of governmental expenditures from a high of 22%.

Nevertheless, operating expenditures for each full-time student in 1976 will be more than $1,500 at the elementary-secondary level, and almost $6,500 at the university level. Consequently, total expenditures for education are now over $12 billion, compared with $1.7 billion 15 years ago. University expenditures increased tenfold during that period. Since education is highly labour intensive, there are limited opportunities for cost-saving alternatives without changing the educational structure. Slower enrolment growth will curtail some expansion of educational costs, provided that teachers' salaries are not substantially raised, as has occurred in some Ontario jurisdictions.

The provincial share (elementary-secondary expenditures) for all provinces amounts to almost two-thirds of total, a proportion which is unlikely to change.

At the post-secondary level, the federal government has in recent years provided over 50% of the financial resources, whereas the provincial share was less than 30%. Since student fees have not changed markedly for years, their share has declined to less than 10%. Some provinces have benefited more than others from federal support programs.

One could speculate that in the evolution of the financing of education in Canada, the provincial governments have, to a large extent, replaced the municipal governments in funding elementary and secondary education. The federal government has in turn, replaced the provinces as the major source for expenditures on post-secondary education. This development has not been adequately recognized.

Expenditures on vocational and occupational training are approaching $1 billion annually, and the federal government contributes over 70% of this amount.

It has been estimated that the federal government contributed almost $2 billion to education and university research in 1972-73, which is approximately 10% of total federal expenditures.

Canadian support for research and development is considerably less than that of the other industrialized countries, and this difference has widened in recent years. The three sectors (government, industry, and university) each perform one-third of the R&D activities, a marked difference from the other O.E.C.D. countries.

For many years, research support for the human sciences was underfunded, compared with the natural sciences, but recently the budgets of the National Research Council and the Medical Research Council have not grown faster than that of the Canada Council. In general, financial resources available for research and development have diminished if inflation and the higher costs of conducting research are considered.

The benefits of the considerable investment in education and research during the 60s and 70s will manifest themselves for many years to come. The statistical series in this documentation provide an overview of these achievements in quantitative terms and raise a number of issues which require a qualitative assessment as well as development of policy options for the future.

CHART 1

Selected Age Group Populations of Relevance to School Enrolment, for Canada, 1961-2001
Population par groupe d'âges spécifique correspondant aux effectifs scolaires, Canada, 1961-2001

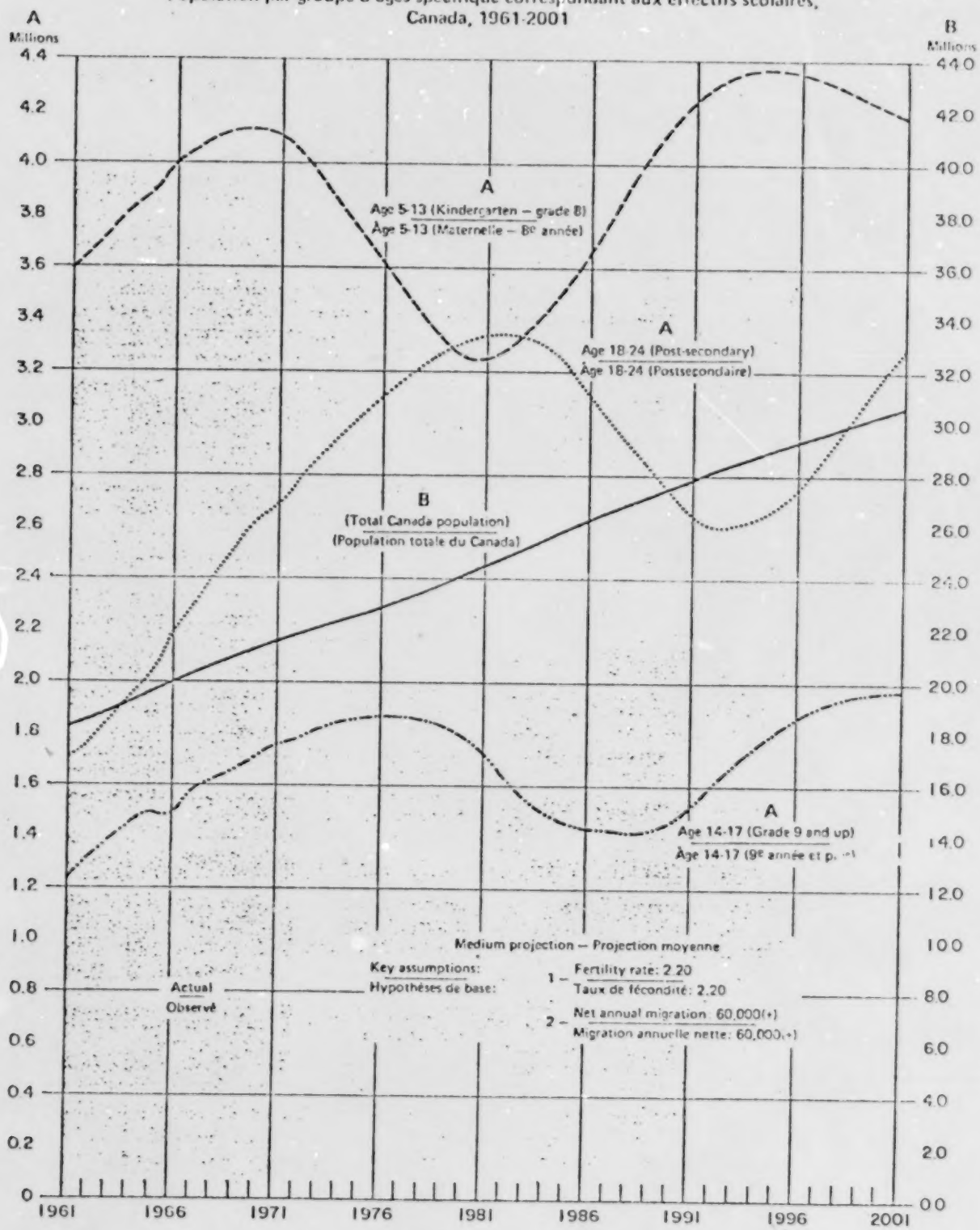

TABLE 1

FULL-TIME EDUCATIONAL ENROLMENT BY LEVEL,
1960-61 TO 1977-78

(in thousands)

	ELEMENTARY		SECONDARY		POST-SECONDARY			
	GRADES 1-8		GRADES 9 AND HIGHER		NON-UNIVERSITY		UNIVERSITY	
	NO.	PERCENTAGE CHANGE	NO.	PERCENTAGE CHANGE	NO.	PERCENTAGE CHANGE	NO.	PERCENTAGE CHANGE
1960-61	3,267.3		788.8		49.4		113.7	
1961-62	3,357.4	2.8	895.0	13.6	53.4	8.1	128.6	13.1
1962-63	3,438.2	2.4	1,002.5	12.0	55.6	4.1	141.1	9.7
1963-64	3,526.4	2.6	1,091.3	8.9	62.2	11.9	158.0	12.0
1964-65	3,619.1	2.6	1,170.7	7.2	66.0	6.5	177.6	12.4
1965-66	3,672.4	1.5	1,257.5	7.4	69.4	5.2	204.2	15.0
1966-67	3,745.6	2.0	1,311.3	4.3	80.2	15.6	230.3	12.7
1967-68	3,819.0	2.0	1,366.1	4.2	99.4	23.9	253.5	10.1
1968-69	3,844.1	0.1	1,475.8	7.8	129.5	30.3	265.8	4.9
1969-70	3,837.2	-1.0	1,562.5	5.9	142.7	10.2	294.1	10.7
1970-71	3,813.3	-1.0	1,668.5	6.8	166.1	16.4	309.5	5.2
1971-72	3,773.7	-1.0	1,712.6	2.3	173.8	4.6	323.0	4.4
1972-73	3,670.2	-2.7	1,756.8	2.6	191.0	9.9	321.4	-0.1
1973-74	3,514.9	-4.3	1,795.1	2.2	201.9	5.7	332.3	3.4
1974-75*	3,434.7	-2.3	1,797.8	.2	211.3	4.7	351.0	5.6
1975-76*	3,341.3	-2.7	1,802.9	.3	220.6	4.4	363.4	3.5
1976-77*	3,385.0 **	1.3	1,682.8**	-6.7	227.4	3.1	373.9	3.0
1977-78*	3,290.0	-2.8	1,658.6	1.4	237.8	4.6	382.4	2.3

*PROJECTED

**On account of a structural change in the education system, some secondary students have been transferred to the elementary group (Grades 1-8).

TABLE 2

PARTICIPATION RATE FOR FULL-TIME
POST-SECONDARY EDUCATION OF SELECTED AGE GROUPS
BY TYPE AND SEX, 1960-61 TO 1977-78

				TOTAL POST-SECONDARY 18-24		
	POST-SECONDARY NON-UNIVERSITY	UNIVERSITY 18-21	UNIVERSITY 18-24	MALE	FEMALE	TOTAL
1960-61	5.0	10.8	6.7	11.9	7.4	9.7
1961-62	5.2	12.0	7.5	13.1	8.2	10.6
1962-63	5.2	12.5	8.0	13.6	8.7	11.1
1963-64	5.5	13.2	8.6	14.5	9.3	11.9
1964-65	5.5	13.9	9.2	15.3	9.7	12.5
1965-66	5.4	15.2	10.1	16.5	10.3	13.4
1966-67	5.8	15.7	10.6	17.5	10.8	14.2
1967-68	6.6	17.0	11.4	19.0	11.9	15.4
1968-69	7.0	18.3	12.2	20.0	12.8	16.4
1969-70	7.0	19.8	13.1	21.0	13.6	17.3
1970-71	7.6	20.7	13.6	21.9	14.3	18.1
1971-72	8.2	21.5	13.7	22.3	14.6	18.5
1972-73	7.9	21.0	13.7	21.9	14.8	18.4
1973-74	11.4	16.8	11.2	21.4	14.5	18.0
1974-75*	11.7	16.3	10.9	21.1	14.6	17.8
1975-76*	11.9	16.1	10.7	20.9	14.6	17.8
1976-77*	12.3	16.5	10.8	21.2	14.8	18.3
1977-78*	12.6	16.9	10.9	21.4	15.0	18.3

*Projected

TABLE 3

PART-TIME UNIVERSITY ENROLMENT IN CREDIT COURSES, 1962-63 TO 1977-78

YEAR	NO.	PERCENTAGE CHANGE
1962-63	43,990	
		29.4
1963-64	56,925	
		12.0
1964-65	63,749	
		14.5
1965-66	73,023	
		16.1
1966-67	84,789	
		15.4
1967-68	97,864	
		3.9
1968-69	101,666	
		20.0
1969-70	122,006	
		28.3
1970-71	156,576	
		0.0
1971-72	155,387	
		0.0
1972-73	153,772	
		5.3
1973-74	161,936	
		3.7
1974-75	167,990	
		5.0
1975-76*	176,470	
		4.1
1976-77*	183,690	
		4.5
1977-78*	191,920	

*Projected

TABLE 4

NUMBER OF PART-TIME STUDENTS BY TYPE OF STUDY IN CONTINUING EDUCATION COURSES IN EDUCATIONAL INSTITUTIONS, 1971-72 TO 1973-74

(in thousands)

	1971-72			1972-73			1973-74 **		
	CREDIT	NON-CREDIT	TOTAL	CREDIT	NON-CREDIT	TOTAL	CREDIT	NON-CREDIT	TOTAL
School Boards and Departments of Education*	227.6	321.4	549.0	209.4	353.6	563.0	196.4	365.0	561.4
Post-Secondary Non-University	121.8	74.5	196.3	131.2	110.2	241.4	141.9	142.7	284.6
University	280.1	138.7	418.8	280.8	159.3	440.1	280.0	206.8	486.8
TOTAL	629.5	505.6	1,164.1	621.4	623.1	1,244.5	618.3	714.5	1,332.8

*Includes provincial correspondence schools.
**Estimated

TABLE 5

FULL AND PART-TIME GRADUATE ENROLMENT, 1960-61 TO 1977-78

YEAR	FULL-TIME	ANNUAL PERCENTAGE CHANGE	PART-TIME	ANNUAL PERCENTAGE CHANGE	TOTAL
1960-61	6,518		3,800*		10,318
		12.7		21.0	
1961-62	7,347		4,600*		11,947
		14.8		16.3	
1962-63	8,436		5,351		13,787
		32.0		21.4	
1963-64	11,133		6,498		17,631
		23.9		11.8	
1964-65	13,797		7,268		21,065
		24.6		6.3	
1965-66	17,196		7,724		24,920
		14.7		30.9	
1966-67	19,719		10,111		29,830
		22.6		5.8	
1967-68	24,187		10,696		34,883
		8.0		-2.0	
1968-69	26,120		10,484		36,604
		15.7		30.8	
1969-70	30,231		13,719		43,950
		9.7		4.7	
1970-71	33,172		14,370		47,542
		7.7		25.5	
1971-72	35,733		18,029		53,762
		1.5		13.6	
1972-73	36,258		20,482		56,740
		1.3		8.8	
1973-74	36,736		22,278		59,014
		1.2		7.4	
1974-75 **	37,350		23,920		61,270
		2.6		5.6	
1975-76 **	38,320		25,320		63,640
		2.2		5.4	
1976-77 **	39,160		26,690		65,850
		2.6		5.0	
1977-78 **	40,180		28,020		68,200

*Estimated
**Projected

TABLE 6

FOREIGN STUDENTS ADMITTED TO CANADA BY LEVEL AND COUNTRY OF ORIGIN, 1973 AND 1974

	SECONDARY		PERCENTAGE CHANGE	UNIVERSITY		PERCENTAGE CHANGE	POST-SECONDARY NON-UNIVERSITY*		PERCENTAGE CHANGE	TOTAL**		PERCENTAGE CHANGE
	1973	1974		1973	1974		1973	1974		1973	1974	
U.S.A.	835	875	4.8	5,582	5,970	7.0	2,547	2,833	11.2	9,186	9,972	8.6
Hong-Kong	2,763	4,199	52.0	2,115	3,499	65.4	1,315	2,145	63.1	6,238	9,906	58.8
Guyana	58	94	62.1	212	278	31.1	1,108	2,512	126.7	1,383	2,902	109.8
Trinidad & Tobago	142	180	26.8	414	422	1.9	627	753	20.1	1,199	1,371	14.4
Nigeria	13	33	153.9	327	500	52.9	357	709	98.6	698	1,242	77.9
Haiti	149	182	22.2	79	61	-22.8	207	633	205.8	471	934	98.3
Pakistan	11	8	-27.3	100	199	99.0	311	672	116.1	422	881	108.8
Iran	36	74	105.6	184	380	106.5	89	403	352.8	311	864	177.8
Jamaica	87	124	42.5	246	271	10.2	240	334	39.2	599	778	29.9
Malaysia	71	157	121.1	191	267	39.8	106	228	115.1	369	655	77.5
India	59	14	-76.3	329	360	9.4	146	211	44.5	538	594	10.4
Mexico	245	240	-2.0	97	120	23.7	104	170	63.5	475	555	16.8
Britain	36	58	61.1	289	317	9.7	60	125	108.3	405	528	30.4
Others	958	1,252	30.7	4,785	5,391	12.7	2,130	2,960	39.0	8,042	9,830	22.2
TOTAL	5,463	7,490	37.1	14,950	18,035	20.6	9,347	14,688	57.1	30,336	41,012	35.2

*Includes "others"
**Includes students in primary education, 1973- 576; 1974- 799.

Source: Department of Manpower and Immigration, unpublished data.

TABLE 7

CITIZENSHIP AND LEGAL RESIDENCE STATUS OF
UNIVERSITY STUDENTS BY LEVEL, 1973-74

	CANADIAN	LANDED IMMIGRANT	FOREIGN STUDENTS	TOTAL
	FULL-TIME			
Undergraduate	274,250 (90.0)	15,846 (5.2)	14,627 (4.8)	304,723
Masters	13,177 (71.9)	2,786 (15.2)	2,364 (12.9)	18,327
Doctorates	4,690 (50.7)	3,145 (34.0)	1,415 (15.3)	9,250
TOTAL	292,092 (87.9)	21,599 (6.5)	18,609 (5.6)	332,300
	PART-TIME			
Undergraduate	126,391 (90.5)	8,659 (6.2)	4,609 (3.3)	139,658
Masters	15,068 (85.7)	1,969 (11.2)	545 (3.1)	17,582
Doctorates	2,775 (71.2)	787 (20.2)	339 (8.7)	3,897
TOTAL	144,379 (89.6)	11,280 (7.0)	5,479 (3.4)	161,137

(PERCENTAGE IN BRACKETS)

Source: Estimated from Statistics Canada data.

TABLE 8

CITIZENSHIP AND LEGAL RESIDENCE STATUS OF FULL-TIME GRADUATE STUDENTS BY LEVEL AND BY FIELD OF STUDY, 1972-73
(in percent)

FIELD OF STUDY	CANADIAN CITIZEN		LANDED IMMIGRANT		FOREIGN STUDENT		NON-CANADIAN STATUS NOT REPORTED		TOTAL NUMBER*	
	MASTERS	PH.D.	MASTERS	PH.D.	MASTERS	PH.D.	MASTERS	PH.D.	MASTERS	PH.D.
Education	81.1	69.9	12.1	20.7	6.3	8.6	0.7	0.8	1,468	618
Fine & Applied Arts	80.2	75.9	14.3	22.2	3.6	1.9	-	-	217	54
Humanities	73.4	56.4	12.6	30.0	12.9	10.9	1.1	2.9	3,114	1,777
Social Sciences	77.5	59.9	11.6	27.9	9.6	11.0	1.3	1.2	5,826	1,919
Agriculture & Biological Sciences	76.2	53.0	12.4	31.6	8.8	12.8	1.6	2.6	969	830
Engineering	51.5	33.8	28.2	43.3	18.8	19.7	1.5	3.2	1,759	1,043
Health Professions and Occupations	75.5	61.3	19.0	29.6	5.3	7.9	0.2	1.2	485	432
Mathematics and Physical Sciences	64.6	45.4	20.6	40.9	12.7	12.3	2.1	1.4	1,598	1,052
TOTAL	72.6	53.0	15.1	32.9	11.0	12.1	1.3	2.0	15,114	8,395

*Information on citizenship and immigration status, was only available for 80% of the graduate student population.

TABLE 9

CITIZENSHIP OF FULL-TIME PH.D. STUDENTS BY GEOGRAPHIC ORIGIN AND BY FIELD OF STUDY, 1972-1973

(in percent)

FIELD OF STUDY	CANADA	UNITED STATES	UNITED KINGDOM	FRANCE & OTHER EUROPEAN	CARIBBEAN	CENTRAL & SOUTH AMERICA	AFRICA	SOUTH PACIFIC	ASIA	TOTAL NUMBER*
Education	70.5	10.8	3.6	2.1	0.8	0.2	2.4	3.9	5.7	614
Humanities	57.2	22.7	6.8	5.7	1.0	0.6	1.4	1.9	2.7	1,751
Social Sciences	60.9	15.9	6.2	4.9	0.5	0.3	2.7	1.9	6.8	1,888
Agriculture and Biological Sciences	53.9	12.0	8.2	4.2	0.7	0.6	2.7	2.6	15.2	817
Engineering	34.7	2.6	4.2	10.1	0.3	2.0	11.8	1.8	32.5	1,017
Health Professions and Occupations	61.6	4.8	3.6	7.4	1.4	1.5	1.1	1.7	17.0	927
Mathematics and Physical Sciences	46.8	8.0	9.6	7.0	0.6	1.5	2.0	2.8	21.7	1,798
TOTAL	53.8	12.6	6.9	5.9	0.7	0.9	3.5	2.4	13.3	8,442

*The geographic origin of full-time Ph.D. students was available for only 80% of the Ph.D. student population.

TABLE 10

PARTICIPATION RATE OF THE 18 TO 24 AGE GROUP IN FULL-TIME POST-SECONDARY EDUCATION BY PROVINCE AND SELECTED YEARS

	1960-61	1965-66	1970-71	1971-72	1972-73
Newfoundland	3.9	7.9	11.8	13.0	12.3
Prince Edward Island	8.5	11.3	15.9	17.5	14.2
Nova Scotia	10.3	14.4	19.1	19.4	18.1
New Brunswick	9.7	14.3	16.5	16.3	13.9
Quebec	11.0	14.7	17.5	18.7	20.5
Ontario	9.0	12.1	19.3	19.5	19.2
Manitoba	9.5	13.5	17.0	17.3	16.2
Saskatchewan	9.8	13.6	15.9	16.6	14.5
Alberta	7.9	13.5	21.1	20.5	19.5
British Columbia	10.8	14.8	17.5	15.9	14.6
Canada	9.7	13.4	18.1	18.5	18.4
Number of Students (thousands)	163	274	476	497	512

TABLE 11

TYPES OF UNIVERSITY DEGREES AWARDED, 1960-61 TO 1976-77

(in thousands)

ACTUAL	BACHELORS	PERCENTAGE CHANGE	MASTERS	PERCENTAGE CHANGE	DOCTORATES	PERCENTAGE CHANGE
1960-61	19.7	15.7	2.2	9.1	.3	0.0
1961-62	22.8	8.4	2.4	16.7	.3	33.3
1962-63	24.9	14.9	2.8	10.7	.4	25.0
1963-64	28.6	15.7	3.1	16.1	.5	20.0
1964-65	33.1	13.9	3.6	25.0	.6	16.7
1965-66	37.7	13.3	4.5	17.8	.7	14.3
1966-67	42.7	15.0	5.3	7.6	.8	12.5
1967-68	49.1	10.6	5.7	18.6	1.0	20.0
1968-69	54.3	11.4	7.0	17.7	1.1	10.0
1969-70	60.5	11.1	8.5	12.9	1.4	27.3
1970-71	67.2	8.0	9.6	7.3	1.6	14.3
1971-72	72.6	-2.6	10.3	2.9	1.7	6.3
1972-73	70.7	10.2	10.6	-2.8	1.9	11.8
1973-74	77.9	.9	10.3	1.9	1.9	0.0
1974-75*	78.6	4.2	10.5	1.0	2.0	5.3
1975-76*	81.3	5.4	10.6	2.8	2.2	10.0
1976-77*	85.7		10.9		2.3	

*Projected

TABLE 12

DIPLOMAS AND CERTIFICATES AWARDED BY
POST-SECONDARY NON-UNIVERSITY INSTITUTIONS,
1964-65 TO 1976-77
(in thousands)

ACTUAL	NO.	PERCENTAGE CHANGE
1964-65	21.6	1.9
1965-66	22.0	13.6
1966-67	25.0	9.6
1967-68	27.4	32.1
1968-69	36.2	11.6
1969-70	40.4	7.2
1970-71	43.3	9.2
1971-72	47.3	10.8
1972-73	48.4	15.7
1973-74*	55.2	14.1
1974-75*	60.1	8.9
1975-76*	64.4	7.2
1976-77*	68.5	6.4

*Projected

TABLE 13

CANADA STUDENT LOANS PLAN, 1964-65 TO 1973-74

Year	No. of students assisted	Value of loans (Millions)	Percentage of students participating	Average loan per student $	Total Net Cost for the federal government (Millions)
1964-65	42,113	26.4	26.5	650.00	--
1965-66	51,272	33.9	28.9	701.00	1.7
1966-67	63,243	39.9	31.4	650.00	3.5
1967-68	90,371	56.5	38.6	641.00	6.9
1968-69	107,312	62.6	38.9	614.00	9.1
1969-70	121,611	77.7	38.6	703.00	15.5
1970-71	135,899	83.2	38.7	677.00	27.1
1971-72	128,585	85.4	36.7	714.00	32.9
1972-73	122,396	99.6	35.3	871.00	32.6
1973-74*	125,987	106.6	35.0	919.00	40.1

*Preliminary

Source: Department of Finance

TABLE 14

FULL-TIME UNDERGRADUATES BY PERMANENT RESIDENCE AND PROVINCE OF STUDY, 1971-72

	PROVINCE OF STUDY										
PERMANENT RESIDENCE	NFLD	P.E.I.	N.S.	N.B.	QUEBEC	ONTARIO	MANITOBA	SASK.	ALTA	B.C.	TOTAL
Newfoundland	6,391	11	456	97	26	69	4	2	5	4	7,065
Prince Edward Island	3	1,426	386	195	20	30	5	1	14	1	2,081
Nova Scotia	16	48	11,376	573	71	251	21	8	33	15	12,412
New Brunswick	8	69	1,177	7,817	137	197	13	3	11	13	9,445
Quebec	21	84	419	1,068	35,161	4,840	39	13	45	56	41,746
Ontario	62	40	551	244	622	83,497	475	109	250	287	86,137
Manitoba	3	2	12	10	38	285	13,718	135	92	78	14,373
Saskatchewan	3	—	10	7	31	238	166	12,867	518	133	13,973
Alberta	3	1	40	11	46	425	321	246	22,635	282	24,010
British Columbia	3	—	43	17	81	255	92	144	388	14,041	15,064
Yukon	—	—	2	—	4	4	11	6	6	34	67
Northwest Territories	1	—	7	2	—	13	1	2	88	19	133
Province Unknown	—	—	—	—	8,440	9,973	4	—	—	2,648	21,065
TOTAL	6,514	1,681	14,479	10,041	44,677	100,077	14,870	13,536	24,085	17,611	247,571
Percent out of province	1.9	15.2	21.4	22.1	3.0	7.3	7.7	4.9	6.0	6.2	

TABLE 15

FULL-TIME GRADUATE STUDENTS BY PERMANENT RESIDENCE AND PROVINCE OF STUDY, 1971-72

PERMANENT RESIDENCE	PROVINCE OF STUDY									
	NFLD	N.S.	N.B.	QUEBEC	ONTARIO	MANITOBA	SASK.	ALTA	B.C.	TOTAL
Newfoundland	213	18	7	7	43	2	1	7	11	309
Prince Edward Island	1	24	13	3	27	2	1	8	1	80
Nova Scotia	4	489	113	11	121	5	4	24	18	789
New Brunswick	1	51	280	29	115	4	1	15	9	505
Quebec	8	36	35	4,840	930	18	11	46	82	6,006
Ontario	18	76	23	144	6,466	87	27	101	199	7,141
Manitoba	1	10	2	15	160	759	12	42	47	1,048
Saskatchewan	2	12	1	10	112	30	424	40	35	666
Alberta	1	10	9	15	162	26	20	2,025	101	2,369
British Columbia	3	19	3	14	228	22	22	54	1,327	1,692
Yukon	1	—	—	—	3	—	—	1	3	8
Northwest Territories	1	3	—	1	—	—	1	7	—	13
Province Unknown	—	—	—	101	971	—	—	—	531	1,603
TOTAL	254	748	486	5,190	9,338	955	524	2,370	2,364	22,229
Percent out of province	16.1	34.6	42.4	4.9	22.7	20.5	19.1	14.6	27.6	

TABLE 16

MOBILITY PATTERN OF UNDERGRADUATE STUDENTS BY PROVINCE, 1971-72

PROVINCE	STUDENTS LEAVING THE PROVINCE	STUDENTS COMING INTO THE PROVINCE	BALANCE*
Newfoundland	674	123	-551
Prince Edward Island	655	255	-400
Nova Scotia	1,036	3,103	+2,067
New Brunswick	1,628	2,224	+596
Quebec	6,585	1,076	-5,509
Ontario	2,640	6,607	+3,967
Manitoba	655	1,148	+493
Saskatchewan	1,106	669	-437
Alberta	1,375	1,450	+75
British Columbia	1,023	922	-101
Yukon	67	0	-67
Northwest Territories	133	0	-133

*A negative balance indicates more students from that particular province were studying in the other provinces than there were students from the other provinces studying there.

A NOTE OF CAUTION: The data for Ontario, Quebec and British Columbia excludes students whose provinces of residence was unknown.

TABLE 17

MOBILITY PATTERN OF GRADUATE STUDENTS
BY PROVINCE, 1971-72

PROVINCE	STUDENTS LEAVING THE PROVINCE	STUDENTS COMING INTO THE PROVINCE	BALANCE*
Newfoundland	96	41	-55
Prince Edward Island	80	0	-80
Nova Scotia	300	259	-41
New Brunswick	225	206	-19
Quebec	1,166	249	-917
Ontario	675	1,901	+1,226
Manitoba	289	196	-93
Saskatchewan	242	100	-142
Alberta	344	345	+1
British Columbia	365	506	+141
Yukon	8	0	-8
Northwest Territories	13	0	-13

*A negative balance indicates that more students from that particular province were studying in other provinces than students from other provinces were studying there.

A NOTE OF CAUTION: The data from Ontario + British Columbia excludes students whose province of residence was unknown.

TABLE 18

FULL-TIME TEACHERS BY LEVEL, 1960-61 TO 1977-78

(in thousands)

	ELEMENTARY & SECONDARY	PERCENTAGE CHANGE	POST-SECONDARY NON-UNIVERSITY	PERCENTAGE CHANGE	UNIVERSITY	PERCENTAGE CHANGE	TOTAL
1960-61	164.0		4.1		7.8		175.9
		6.3		7.3		12.8	
1961-62	174.3		4.4		8.8		187.5
		7.7		0.0		9.1	
1962-63	185.6		4.4		9.6		199.6
		4.6		4.5		13.5	
1963-64	194.2		4.6		10.9		209.7
		5.5		6.5		13.8	
1964-65	204.8		4.9		12.4		222.1
		3.4		8.2		16.1	
1965-66	211.8		5.3		14.4		231.5
		6.7		18.9		16.0	
1966-67	226.0		6.3		16.7		249.0
		8.1		14.3		14.4	
1967-68	244.3		7.2		19.1		270.6
		5.6		26.4		5.2	
1968-69	258.0		9.1		20.1		287.2
		5.0		15.4		12.9	
1969-70	270.9		10.5		22.7		304.1
		1.8		14.3		8.8	
1970-71	275.9		12.0		24.7		312.6
		-0.1		17.5		6.5	
1971-72	275.7		14.1		26.3		316.1
		-0.1		9.9		2.3	
1972-73	275.3		15.5		26.9		317.7
		-2.3		2.6		7.4	
1973-74	269.1		15.9		28.9		313.9
		1.3		3.8		3.5	
1974-75*	272.6		16.5		29.9		319.0
		-0.3		4.2		2.0	
1975-76*	271.8		17.2		30.5		319.5
		-0.5		2.3		2.0	
1976-77*	270.5		17.6		31.1		319.2
		-1.4		4.5		1.3	
1977-78*	266.7		18.4		31.5		316.6

*Projected

TABLE 19

STUDENT FACULTY RATIO AT UNIVERSITIES,
1960-61 TO 1975-76

YEAR	TOTAL FULL-TIME EQUIVALENT*		FULL-TIME FACULTY		AVERAGE STUDENT FACULTY RATIO	MARGINAL OR INCREMENTAL STUDENT FACULTY RATIO
1960-61	125.7		7.8		16.1	
		15.4		1.0		15.4
1961-62	141.1		8.8		16.0	
		14.7		.8		18.4
1962-63	155.8		9.6		16.2	
		21.2		1.3		16.3
1963-64	177.0		10.9		16.2	
		21.8		1.5		14.5
1964-65	198.8		12.4		16.0	
		29.7		2.0		14.9
1965-66	228.5		14.4		15.9	
		30.1		2.3		13.1
1966-67	258.6		16.7		15.5	
		27.5		2.4		11.5
1967-68	286.1		19.1		15.0	
		13.6		1.0		13.6
1968-69	299.7		20.1		15.0	
		35.1		2.6		13.5
1969-70	334.8		22.7		14.7	
		26.9		2.0		13.5
1970-71	361.7		24.7		14.6	
		13.1		1.6		8.2
1971-72	374.8		26.3		14.3	
		-2.1		.6		-3.5
1972-73	372.7		26.9		13.9	
		11.5		2.0		5.8
1973-74	386.3		28.9		13.4	
		20.7		1.0		20.7
1974-75	407.0		29.9		13.6	
		15.2		.6		25.3
1975-76**	422.2		30.5		13.8	
		12.9		.6		21.5
1976-77**	435.1		31.1		14.0	
		11.3		.4		28.3
1977-78**	446.4		31.5		14.2	

*Part-time students have been converted by a ratio of 3 to 1 to full-time equivalent.
**Projected.

TABLE 20

EDUCATIONAL ATTAINMENT OF THE CANADIAN LABOR FORCE BY LEVEL, 1960 TO 1974

(in percent)

	1960	1965	1970	1972	1974
Some Elementary	20.9	17.0	12.5	24.4	21.6
Completed Elementary	24.4	21.2	15.9		
Sub-Total	45.3	38.2	28.4	24.4	21.6
Some Secondary	30.0	33.2	33.8	32.1	33.5
Completed Secondary	16.2	18.0	23.5	20.8	20.9
Sub-Total	46.2	51.2	57.3	52.9	54.4
Some Post-Secondary Non-University	N/A	N/A	N/A	3.5	3.2
Completed Post-Secondary Non-University	N/A	N/A	N/A	6.4	7.6
Some University or University Degree	8.5	10.6	14.3	12.6	13.2
Sub-Total	8.5	10.6	14.3	22.5	24.0

TABLE 21

ACTUAL AND PROJECTED HIGHEST LEVEL OF EDUCATIONAL ATTAINMENT OF THE POPULATION 14 YEARS AND OVER, 1960 TO 1985

(in percent)

	ACTUAL				PROJECTED		
LEVEL	1960	1965	1970	1974	1975	1980	1985
Elementary[1]	47.7	41.0	32.5	27.8	26.6	22.4	19.1
Secondary[2]	45.4	50.4	55.4	54.7	52.7	51.8	49.2
Post-Secondary[3]	6.9	8.6	12.1	17.5	20.7	25.8	31.7

[1]Includes "some" and "completed" elementary education

[2]Includes "some" and "completed" secondary education

[3]Includes "some" and "completed" post-secondary levels of non-university and university education

TABLE 22

COMPARISON OF 1961 AND 1971 CENSUS
POPULATION NOT IN SCHOOL AT 5 YEARS
OF AGE AND OVER BY EDUCATIONAL LEVEL

(in thousands)

	1961		1971	
	No.	Percent	No.	Percent
Less than grade 5	1,557	21.7	1,426	10.3
Grades 5-8	4,172	34.9	4,102	29.7
Grades 9-10	2,407	18.5	2,996	21.7
Grades 11-13	2,809	20.0	2,953	21.4
Post-Secondary Non-University	N/A	N/A	1,045	7.6
University (some)	344	2.7	678	4.9
University Degree	327	2.2	614	4.4
TOTAL	11,616	100.0	13,814	100.0

TABLE 23

EXPENDITURES ON EDUCATION IN RELATION TO
SOCIO-ECONOMIC INDICATORS,
SELECTED YEARS

YEAR	GNP PERCENTAGE	POPULATION ($ PER CAPITA)	FULL-TIME ENROLMENT ($ PER CAPITA)
1960	4.4	95	391
1962	5.5	128	494
1964	5.7	150	551
1966	6.7	208	733
1968	8.0	279	948
1970	8.8	355	1,189
1971	8.9	386	1.309
1972	8.5	403	1,388

TABLE 24

GOVERNMENTS * EXPENDITURES ON EDUCATION AND BY OTHER MAJOR FUNCTIONS, SELECTED YEARS

(in percent)

YEAR	EDUCATION	DEFENCE	HEALTH	SOCIAL WELFARE	TRANSPORTATION	OTHER
1960	14.0	17.0	7.3	15.1	13.5	32.6
1963	17.5	13.3	9.2	15.0	12.2	31.7
1965	18.5	12.2	9.9	15.0	12.8	31.5
1968	22.2	9.3	10.9	15.5	9.8	32.3
1970	21.6	6.8	13.4	17.2	10.3	30.7
1971	21.2	6.3	13.4	19.3	10.2	29.6

* Federal, Provincial and Municipal

TABLE 25

OPERATING EXPENDITURES PER FULL-TIME STUDENT BY EDUCATIONAL LEVEL
1960 TO 1976
(in current dollars)

	1960	1965	1970	1971	1972	1973	1974**	1975**	1976**
Elementary & Secondary	305	455	814	900*	955*	1,059**	1,182	1,379	1,580
Post-Secondary									
Non-University	915	1,040	1,898	2,196*	2,155*	2,443**	2,888	3,233	3,610
University	1,603	2,102	3,955	4,228	4,461	4,758*	5,119	5,786	6,404

*Preliminary

**Estimated

TABLE 26

EXPENDITURES ON EDUCATION BY LEVEL,
1960-61 TO 1976-77
(in millions of current dollars)

	ELEMENTARY & SECONDARY		POST-SECONDARY NON-UNIVERSITY		UNIVERSITY		VOCATIONAL AND OCCUPATIONAL TRAINING		TOTAL
	$	%	$	%	$	%	$	%	$
1960-61	1,328.3	77.9	57.6	3.4	272.9	16.0	47.2	2.7	1,706.0
1965-66	2,410.8	70.9	98.8	2.9	736.6	21.7	153.4	4.5	3,399.5
1969-70	4,262.8	65.0	272.2	4.2	1,583.0	24.2	436.8	6.7	6,554.8
1970-71	4,804.8	64.9	373.5	5.0	1,767.3	23.9	461.9	6.2	7,408.9
1971-72	5,456.2	66.5	499.1	6.0	1,888.1	22.7	483.6	5.8	8,327.0
1972-73*	5,671.3	65.2	526.3	6.1	1,897.1	21.8	600.5	6.9	8,695.3
1973-74**	6,200.6	65.2	635.2	6.7	2,029.3	21.3	649.5	6.8	9,514.7
1974-75**	6,866.8	64.8	760.6	7.2	2,278.5	21.4	685.5	6.5	10,591.3
1975-76**	7,885.3	64.5	892.0	7.3	2,641.2	21.6	809.5	6.6	12,228.0
1976-77**	8,923.4	64.7	1,009.9	7.3	2,952.0	21.4	917.0	6.6	13,802.3

*Preliminary

**Projected

TABLE 27

EXPENDITURES ON ELEMENTARY-SECONDARY EDUCATION BY SOURCE OF FUNDS, 1960 TO 1976
(in thousands of current dollars and in percent)

ELEMENTARY & SECONDARY	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971*	1972*	1973**	1974**	1975**	1976**
FEDERAL GOVERNMENT	51,448 (3.9)	62,032 (4.1)	188,802 (10.4)	121,975 (6.5)	99,155 (4.8)	141,065 (5.8)	182,255 (6.5)	179,313 (5.6)	194,802 (5.2)	218,834 (5.1)	275,754 (5.7)	215,480 (4.0)	172,482 (3.0)	226,897 (3.7)	258,934 (3.8)	297,503 (3.8)	337,036 (3.8)
STATE GOVERNMENTS	541,892 (40.8)	638,059 (42.6)	772,295 (42.7)	816,180 (43.4)	938,783 (45.4)	1,097,611 (45.5)	1,296,527 (46.5)	1,605,191 (49.7)	1,929,197 (51.1)	2,274,128 (53.1)	2,686,779 (55.0)	3,234,334 (59.7)	3,473,604 (61.3)	3,815,221 (61.5)	4,260,706 (62.0)	5,038,473 (63.8)	5,752,097 (64.9)
LOCAL GOVERNMENTS	652,503 (49.1)	689,832 (46.0)	738,735 (40.9)	824,885 (43.9)	913,407 (44.2)	1,034,952 (43.0)	1,151,122 (41.2)	1,308,592 (40.5)	1,475,221 (39.1)	1,622,301 (37.9)	1,714,820 (35.1)	1,726,197 (31.8)	1,794,484 (31.7)	1,878,801 (30.3)	2,084,889 (30.3)	2,237,303 (28.3)	2,479,631 (27.7)
FEES	49,039 (3.7)	52,344 (3.5)	57,868 (3.2)	63,055 (3.4)	68,401 (3.3)	78,261 (3.3)	77,813 (2.8)	62,230 (1.9)	68,450 (1.8)	65,388 (1.5)	90,615 (1.9)	97,541 (1.8)	109,180 (1.9)	121,158 (2.0)	138,739 (2.0)	161,853 (2.1)	185,164 (2.1)
OTHER SOURCES	33,422 (2.5)	57,192 (3.8)	51,082 (2.8)	52,982 (2.8)	46,410 (2.3)	58,909 (2.4)	83,225 (3.0)	74,212 (2.3)	107,448 (2.8)	100,770 (2.4)	112,458 (2.3)	148,355 (2.7)	121,557 (2.1)	158,433 (2.5)	133,523 (1.9)	160,121 (2.0)	178,455 (2.0)
TOTAL	1,328,294	1,499,459	1,808,782	1,879,077	2,066,156	2,410,798	2,790,942	3,230,038	3,775,118	4,281,421	4,880,426	5,421,907	5,671,307	6,200,600	6,876,791	7,895,258	8,933,383

*Preliminary

**Estimate

TABLE 28

EXPENDITURES ON POST-SECONDARY EDUCATION BY SOURCE OF FUNDS, 1960 TO 1976
(in thousands of current dollars and in percent)

POST-SECONDARY EDUCATION	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969*	1970*	1971*	1972*	1973*	1974**	1975**	1976**
FEDERAL GOVERNMENT	74,559 (22.6)	78,127 (21.2)	104,629 (23.1)	126,428 (23.3)	135,692 (19.7)	157,092 (18.8)	263,465 (23.6)	634,895 (44.0)	748,276 (46.4)	898,579 (46.1)	1,056,213 (47.6)	1,232,226 (51.6)	1,302,237 (53.7)	1,388,449 (52.1)	1,574,443 (51.8)	1,788,905 (50.6)	2,023,780 (51.1)
PROVINCIAL GOVERNMENTS	152,606 (46.2)	179,665 (48.7)	215,086 (47.6)	245,061 (45.1)	319,691 (46 3)	416,015 (49.8)	545,309 (48.8)	464,314 (32.2)	549,531 (34.1)	645,352 (33.1)	696,042 (31.3)	659,129 (27.6)	657,923 (27.2)	802,201 (30.1)	977,164 (32.2)	1,210,309 (34.3)	1,363,565 (34.4)
MUNICIPAL GOVERNMENTS	704 (0.2)	1,504 (0.4)	920 (0.2)	1,182 (0.2)	1,181 (0 2)	1,174 (0.1)	4,245 (0.4)	3,411 (0.2)	2,468 (0.2)	3,641 (0.2)	4,426 (0.2)	4,052 (0.2)	4,129 (0.2)	8,261 (0.3)	10,965 (0.3)	11,545 (0.3)	12,105 (0.3)
FEES	48,458 (14.7)	58,481 (15.8)	64,848 (14.3)	78,757 (14.5)	93,514 (13.5)	114,628 (13.7)	135,288 (12.1)	153,031 (10.6)	175,483 (10.9)	195,909 (10.0)	219,894 (9.9)	256,294 (10.8)	267,170 (11.0)	288,562 (10.8)	313,927 (10.3)	339,206 (9.6)	369,470 (9.1)
OTHER SOURCES	54,214 (16.4)	51,280 (13.9)	66,843 (14.8)	92,077 (16.9)	140,360 (20.3)	146,437 (17.5)	168,305 (15.1)	187,837 (13.0)	135,417 (8.4)	206,873 (10.6)	244,232 (11.0)	234,718 (9.8)	192,000 (7.9)	177,102 (6.7)	162,598 (5.4)	183,308 (5.2)	202,020 (5.1)
TOTAL	330,540	369,057	452,326	543,505	690,438	835,346	1,116,612	1,443,488	1,611,175	1,950,354	2,220,807	2,386,419	2,423,459	2,664,574	3,039,097	3,533,273	3,961,940

*Preliminary

**Estimate

TABLE 29

PAYMENTS UNDER THE FEDERAL-PROVINCIAL FISCAL ARRANGEMENTS ACT 1967 (1967-68 TO 1975-76)

(in millions of current dollars)

	TAX ABATEMENT EQUALIZATION AND PAYMENTS		CASH ADJUSTMENT PAYMENTS		TOTAL PAYMENTS	
ACTUAL	$	Percentage Change Over previous year	$	Percentage Change Over previous year	$	Percentage Change Over previous year
1967-68	239.7		181.9		421.5	
1968-69	293.5	22.4	233.9	28.6	527.4	25.1
1969-70	345.0	17.5	305.3	30.5	650.4	23.3
1970-71	380.8	10.4	415.9	36.2	796.6	22.5
1971-72	444.0	16.6	485.8	16.8	929.8	16.7
1972-73	530.3	19.4	481.8	-.8	1,012.1	8.9
1973-74	671.5	26.6	445.2	-7.6	1,116.7	10.3
1974-75*	773.3	15.2	503.6	13.1	1,276.9	14.4
1975-76*	928.5		540.0		1,468.5	

*Estimated

Source: Department of the Secretary of State

TABLE 30

FISCAL TRANSFERS ON A PER CAPITA BASIS FOR POST-SECONDARY EDUCATION BY PROVINCE, Selected Years (current dollar)

	1967-68	1970-71	1973-74
Newfoundland	15	27	35
	(.71)	(.73)	(.73)
Prince Edward Island	15	28	36
	(.71)	(.76)	(.75)
Nova Scotia	21	38	48
	(1.0)	(1.0)	(1.0)
New Brunswick	15	28	36
	(.71)	(.76)	(.75)
Quebec	22	37	54
	(1.1)	(1.0)	(1.1)
Ontario	21	40	51
	(1.0)	(1.1)	(1.1)
Manitoba	19	34	42
	(.90)	(.92)	(.88)
Saskatchewan	20	32	43
	(.95)	(.86)	(.90)
Alberta	27	50	56
	(1.3)	(1.4)	(1.2)
British Columbia	17	27	34
	(.80)	(.73)	(.71)
CANADA	21	37	48

In brackets, ratio: $\frac{\text{Provincial per capita}}{\text{Canada average per capita}}$

Source: Department of the Secretary of State

TABLE 31

EXPENDITURES ON VOCATIONAL AND OCCUPATIONAL TRAINING BY SOURCE OF FUNDS, 1960 TO 1976
(in thousands of current dollars and in percent)

VOCATIONAL & OCCUPATIONAL TRAINING	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971*	1972*	1973*	1974*	1975**	1976**
FEDERAL GOVERNMENT	13,925 (29.5)	28,753 (46.3)	69,881 (59.9)	60,236 (51.0)	66,460 (49.8)	81,819 (53.4)	123,036 (59.7)	236,856 (67.3)	243,046 (62.2)	293,116 (74.7)	394,153 (68.6)	413,122 (76.2)	455,120 (75.8)	465,583 (71.7)	483,441 (70.5)	572,769 (70.7)	657,058 (71.7)
PROVINCIAL GOVERNMENTS	27,042 (57.4)	26,843 (43.2)	40,362 (34.6)	50,160 (42.4)	58,682 (44.0)	63,307 (41.3)	114,022 (46.0)	102,420 (29.1)	134,393 (34.4)	82,513 (21.0)	137,105 (23.9)	96,001 (17.7)	103,858 (17.3)	128,066 (19.7)	142,640 (20.8)	170,594 (21.1)	188,879 (20.6)
MUNICIPAL GOVERNMENTS	— —	— —	— —	— —	— —	— —	— —	— —	10 (0.0)	96 (0.0)	108 (0.0)	— —	— —	— —	— —	— —	— —
FEES	5,105 (10.8)	5,286 (8.5)	5,528 (4.7)	6,822 (5.8)	6,30- (5.2)	6,048 (3.9)	7,221 (2.9)	8,412 (2.4)	9,148 (2.3)	8,412 (2.2)	10,000 (1.7)	25,097 (4.6)	28,702 (4.8)	44,089 (6.8)	46,624 (6.8)	50,820 (6.3)	54,188 (5.9)
OTHER SOURCES	1,090 (2.3)	1,273 (2.0)	1,058 (0.9)	1,007 (0.9)	1,307 (1.0)	2,187 (1.4)	3,412 (1.4)	4,243 (1.2)	4,243 (1.1)	8,133 (2.1)	33,450 (5.8)	8,036 (1.5)	12,859 (2.1)	11,805 (1.8)	12,748 (1.9)	15,291 (1.9)	16,836 (1.8)
TOTAL	47,152	62,155	116,829	118,225	133,353	153,361	247,691	351,931	390,840	392,270	574,816	542,256	600,539	649,543	685,453	809,474	916,961

*Preliminary

**Estimate

TABLE 32

FEDERAL COSTS OF MANPOWER TRAINING BY TYPE OF EXPENDITURES,
1967-68 TO 1976-77
(in thousands of current dollars)

FISCAL YEAR	PUBLIC INSTITUTIONS	INDUSTRY	PRIVATE	APPRENTICESHIP	ALLOWANCES	CAPITAL (e.g, CONSTRUCTION)	TOTAL
1967-68	85,214	608	114	9,079	91,843	20,866	207,724
1968-69	70,189	2,931	982	17,772	109,024	19,147	220,045
1969-70	86,995	2,519	1,261	20,342	131,182	22,384	264,683
1970-71	102,270	2,082	4,816	24,251	156,652	57,887	347,958
1971-72	140,346	7,994	1,873	19,282	161,333	35,016	365,844
1972-73	159,313	51,749	1,685	25,980	146,167	--	384,894
1973-74	175,462	42,904	1,654	26,416	147,735	--	394,171
1974-75	188,224	42,694	1,867	25,014	147,270	--	405,069
1975-76*	227,767	44,770	44,770	25,000	188,496	--	486,033
1976-77*	262,990	51,490	51,490	28,750	216,770	--	560,000

*Estimated

76

77

TABLE 33

FEDERAL SUPPORT OF EDUCATIONAL AND RESEARCH ACTIVITIES BY TYPE OF RECIPIENT, 1972-73

TYPE OF SUPPORT \ RECIPIENT	INSTITUTION (1)	GOVERNMENT (2)			STUDENT (3)	FACULTY MEMBER (4)	UNABLE TO SPECIFY RECIPIENT (5)	TOTAL $
		PROVINCIAL TOTAL $	MUNICIPAL TOTAL $	OTHER TOTAL $	TOTAL $	TOTAL $		
Federal-Provincial Fiscal Arrangements Act	-	1,062,139,842	-	-	-	-	-	1,062,139,842
Research Grant	13,927,433	165,878	-	-	9,750	97,375,388	-	111,478,449
Other Grant	4,584,124	279,860,083	313,000	420,990	184,000	1,387,111	-	286,749,308
Bursary	-	-	-	-	856,762	-	-	856,762
Scholarship	-	565,923	-	-	16,974,623	-	-	17,540,546
Allowance	-	-	-	-	150,091,546	-	-	150,091,546
Fellowship	-	-	-	-	1,680,538	5,005,466	-	6,686,004
Fees (tuition)	-	-	6,793,000	-	-	-	-	6,793,000
Loan, Cost of	3,800,000	39,588,000	-	-	-	-	-	43,388,000
Films, broadcasts, lectures	1,782,535	-	-	-	-	-	-	1,782,535
Schools operated by Federal Government Department	-	-	-	-	-	-	43,329,000	43,329,000
Indian and Northern Affairs Education Program	-	-	-	-	-	-	110,000,000	110,000,000
Tax Exemptions	-	-	-	-	-	-	50,000,000	50,000,000
TOTAL	24,094,092	1,382,319,726	7,106,000	420,990	169,797,219	103,767,965	203,329,000	1,890,834,992

Source: Department of the Secretary of State

TABLE 34

ESTIMATED GOVERNMENT RESEARCH AND DEVELOPMENT FUNDING AS PERCENTAGE OF GNP, 1961 TO 1970
(in percent)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Canada	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.8	0.7	0.7
Belgium	..	..	..	..	0.5	0.6	0.6	0.6	0.7	0.7
France	0.9	1.0	1.1	1.2	1.4	1.4	1.5	1.4	1.3	1.2
Germany	0.5	0.7	0.7	0.8	0.8	0.9	1.0	0.9	0.9	0.9
Italy	..	..	0.2	0.2	0.3	0.3	0.4	0.4	0.4	0.5
Japan	0.6	0.5	0.4	0.4	0.5	0.5	0.5	0.5	0.5	..
Netherlands	0.5	0.6	0.6	0.7	0.8	0.9	0.9	0.9	0.9	0.9
Norway	0.4	0.4	0.5	0.5	0.6	0.5	0.6	0.7	0.7	0.6
Spain	..	..	0.1	0.1	0.1	0.1	0.1	0.2	0.2	..
Sweden	0.8	0.9	0.9	1.0	1.0	1.0	1.0	1.1	0.9	..
United Kingdom	1.4	1.3	1.3	1.4	1.3	1.3	1.3	1.3	1.3	1.1
United States	2.0	2.1	2.5	2.3	2.3	2.2	2.1	1.9	1.6	1.6

Source: O.E.C.D.

TABLE 35

GOVERNMENT FUNDED RESEARCH AND DEVELOPMENT AS PERCENTAGE OF TOTAL GOVERNMENT CURRENT EXPENDITURES, 1961 to 1971
(in per cent)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971
France	7.0	7.6	8.3	9.7	11.2	11.8	12.5	11.6	10.6	9.6	9.1
United States	10.5	11.2	13.1	12.6	12.7	11.5	10.1	8.9	8.0	7.8	7.5
United Kingdom	8.5	8.1	8.0	8.4	7.9	7.7	7.2	7.2	7.3	7.0	7.1
Japan	5.3	5.5	5.5	5.4	5.6	5.8	5.9	5.9	6.1	..	..
Germany	3.7	4.3	4.4	5.1	5.3	5.5	5.9	5.9	5.9	6.0	6.0
Belgium	..	..	..	..	3.8	4.6	4.6	4.5	5.1	5.4	5.9
Netherlands	3.9	4.1	4.9	4.9	5.3	5.6	5.9	5.9	5.6	5.7	5.4
Sweden	4.9	5.0	5.2	5.6	5.4	5.3	5.1	4.9	4.2	..	..
Canada	3.4	3.1	3.4	3.6	4.1	3.8	4.0	4.0	3.9	3.5	3.4
Norway	3.0	2.8	3.0	3.1	3.6	3.3	3.6	3.7	3.7	3.5	..
Italy	..	..	1.4	1.8	2.2	2.4	3.1	3.0	3.1	3.7	3.3
Spain	..	..	1.5	1.6	1.8	1.7	1.6	1.8	1.9	..	..

Source: OECD

TABLE 36

EXPENDITURES ON RESEARCH AND DEVELOPMENT,
BY SOURCE OF FUNDS, 1963 to 1972

(Millions of Dollars)

YEAR	GOVERNMENT	INDUSTRY	UNIVERSITY	PRIVATE NON-PROFIT	FOREIGN	TOTAL
1963	245 (54.6)	147 (32.7)	40 (8.9)	5 (1.1)	12 (2.6)	449
1964	274 (51.1)	188 (35.1)	55 (10.3)	5 (0.9)	14 (2.6)	536
1965	331 (50.7)	213 (32.6)	70 (10.7)	6 (0.9)	33 (5.1)	653
1966	385 (49.9)	251 (32.5)	100 (13.0)	6 (0.8)	30 (3.9)	772
1967	452 (51.1)	274 (31.0)	128 (14.5)	7 (0.8)	24 (2.7)	885
1968	505 (52.7)	277 (28.9)	142 (14.8)	10 (1.0)	24 (2.5)	958
1969	537 (50.6)	321 (30.2)	168 (13.8)	12 (1.1)	24 (2.3)	1,062
1970	558 (50.0)	329 (29.5)	188 (16.9)	12 (1.0)	29 (2.6)	1,116
1971	597 (50.6)	345 (29.3)	197 (16.7)	12 (1.0)	28 (2.4)	1,179
1972	624 (50.8)	337 (27.4)	212 (17.3)	16 (1.3)	39 (3.2)	1,228

(percent in brackets)

TABLE 37

EXPENDITURES ON RESEARCH AND DEVELOPMENT,
BY SECTOR OF PERFORMANCE, 1963 to 1972

(Millions of Dollars)

	GOVERNMENT	INDUSTRY	UNIVERSITY AND PRIVATE NON-PROFIT	CANADA TOTAL
1963	189 (42.1)	181 (40.3)	79 (17.6)	449
1964	211 (39.4)	227 (42.4)	98 (18.3)	536
1965	238 (36.5)	287 (44.0)	128 (19.6)	653
1966	261 (33.8)	317 (41.1)	194 (25.1)	772
1967	304 (34.4)	334 (37.7)	247 (27.9)	885
1968	331 (34.5)	341 (35.6)	286 (29.9)	958
1969	336 (31.6)	392 (36.9)	334 (31.5)	1,062
1970	348 (31.2)	403 (36.1)	365 (32.7)	1,116
1971	371 (31.5)	431 (36.6)	377 (32.0)	1,179
1972	404 (32.9)	430 (35.0)	394 (32.0)	1,228

(percent in brackets)

TABLE 38

UNIVERSITY RESEARCH AND DEVELOPMENT EXPENDITURES AS
A PERCENTAGE OF TOTAL UNIVERSITY EXPENDITURES, 1966 to 1972
($ millions)

YEAR	UNIVERSITY RESEARCH AND DEVELOPMENT EXPENDITURES	TOTAL UNIVERSITY EXPENDITURES*	PERCENTAGE OF RESEARCH AND DEVELOPMENT/TOTAL UNIVERSITY EXPENDITURES
1966	194	737	26.3
1967	247	992	24.9
1968	286	1,243	23.0
1969	334	1,360	24.6
1970	365	1,583	23.0
1971	377	1,830	20.6
1972	394	1,888	20.9

*Direct and indirect costs - This includes operating, capital and departmental expenditures, as well as student aid, scholarships and bursaries paid by federal and provincial governments directly to students.

TABLE 39

FEDERAL SPONSORED RESEARCH AND DEVELOPMENT IN UNIVERSITIES*

1965-66 TO 1974-75

(Millions of Dollars)

YEAR	NATURAL SCIENCES				HUMAN SCIENCES**			
	NATIONAL RESEARCH COUNCIL	MEDICAL RESEARCH COUNCIL	OTHER DEPARTMENTS AND AGENCIES	SUB-TOTAL	CANADA COUNCIL	OTHER DEPARTMENTS AND AGENCIES	SUB-TOTAL	TOTAL
1965-66	18.1	11.5	11.8	41.4	3.1			
1966-67	29.1	11.2	15.2	55.5	5.8			
1967-68	37.9	18.5	25.3	81.7	11.6			
1968-69	49.8	25.1	27.7	102.6	16.6			
1969-70	55.5	28.0	32.9	116.4	17.8			
1970-71	55.5	30.7	32.3	118.5	19.0			
1971-72	58.5	32.0	35.0	125.5	18.9	NO DATA ARE AVAILABLE		
1972-73	58.2	33.8	33.8	125.8	19.4	12.5	31.9	161.1
1973-74	59.6	36.8	38.6	135.0	21.9	16.3	38.2	174.8
1974-75	60.0	36.8	38.8	135.6	24.5	20.2	44.7	179.5

*Included is support to Non-Profit Institutions, mainly hospitals, fellowships and contracts. (The contracts amounted to $7.8 million in 1972-73, $8.4 in 1973-74 and $9.7 in 1974-75)

**Support programs for the Social Sciences and Humanities in Scientific Activities.

TABLE 40

RESEARCH EXPENDITURES OF THE THREE COUNCILS

1968-69 TO 1974-75

(IN THOUSANDS OF CURRENT DOLLARS)

	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75
National Research Council							
R&D Contracts	200	166	264	341	390	220	275
R&D Grants	47,493	53,450	53,165	55,816	55,909	58,026	58,475
Research Fellowships	81	164	262	601	675	717	790
Scholarship Programs	7,930	7,909	7,984	7,684	6,792	6,768	6,810
Scientific Information	-	-	-	-	-	-	-
TOTAL	55,704	61,689	61,675	64,449	63,766	65,731	66,350
Medical Research Council							
R&D Grants	21,404	23,932	26,814	28,093	31,915	34,943	34,950
Research Fellowships	1,587	1,742	1,694	1,696	1,840	1,801	1,800
Data Collection	74	120	102	128	149	140	140
Scientific Information	58	45	83	64	100	106	106
Scholarship Programs	783	1,295	1,257	1,435	1,258	1,222	1,220
TOTAL	23,906	27,134	29,950	31,416	35,262	38,212	38,216
Canada Council							
Research Contracts					15	4	72
Research Grants				6,402	4,780	5,536	6,055
Research Fellowships					2,815	3,427	3,984
Scientific Information				1,540	2,575	2,550	2,950
Education Support				6,416	5,729	6,373	6,386
TOTAL	14,564	16,975	14,083	14,358	15,914	17,890	19,447

TABLE 41

DIRECT FEDERAL SUPPORT TO STUDENTS, 1972-73

DEPARTMENT/AGENCY	NUMBER	$000's	AVERAGE GRANT
Canada Council	2,060	9,200	$ 4,466
National Research Council	2,324	8,488	3,652
National Health & Welfare	643	1,128	1,754
Agriculture	34	188	5,532
Environment	29	80	2,758
Secretary of State	198	1,017	5,138
Central Mortgage & Housing	215	925	4,302
Other	43	142	3,302
TOTAL	5,546	21,168	3,817

Source: Secretary of State